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| 10/509,429 | 09/24/2004 | Ludovic Noirie | Q82799 | 3427 |
| 23373 | 7590 | 05/15/2007 | EXAMINER | |
| SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037 | | | STAHL, MICHAEL J | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/509,429

Applicant(s)

NOIRIE ET AL.

Examiner

Mike Stahl

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 10-12 and 16 is/are rejected.
- 7) ☒ Claim(s) 5-9 and 13-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 29, 2007 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 16 recites that the number of dividers is less than N. However, parent claim 1 establishes that there are at least N dividers in lines 11-12 ("each of said N outputs comes from a different divider"). If there are N outputs, and each one comes from a different divider, there must be at least N dividers. Therefore, since claim 1 requires at least N dividers, claim 16 cannot be simultaneously satisfied.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Shiragaki et al. (US 6115517).

Claim 1: Shiragaki discloses in fig. 5 a space cross-connect unit (SCCU) with N input ports and P output ports, comprising: a broadcast stage with N signal dividers **511-51n** each having one input and C outputs where C is an integer factor of P less than P, each input being connected to one of the N input ports **501-50n** so that each divider divides a signal received at one of the input ports into C signals at the C outputs, and a space switching stage comprising at most C space switching modules (a single module is regarded as including the set of elements **52i-j** and **53i-j** which are ultimately connected to a common multiplexer **56i** in fig. 5), the SCCU being characterized in that: the C space switching modules are non-blocking and non-broadcasting, and each module has N inputs and P/C outputs, said N inputs are connected to N outputs of the broadcast stage, each of those N outputs comes from a different divider **51i**, and each of the P/C outputs of the modules is connected to a respective one of the P output ports. In terms of the variables used in fig. 5, $N = n$, $P = m \times n$, $C = n$, and $P/C = m$. In this arrangement, the output ports of the SCCU are regarded as the collective outputs of the space switching modules identified above, prior to but not including the various elements **54i-j**. Because the Shiragaki SCCU as interpreted above contains the same structure as the recited invention, it is inherent that it is operable to perform packet switching and circuit switching. Note MPEP 2112.01(I). Furthermore, the broadcasting of input signals by the broadcast stage (including dividers **51i**) is independent of wavelength since the dividers merely split the power of the signal among their different outputs (i.e. they do not perform any wavelength demultiplexing).

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Claim 2: There are exactly N dividers **51i** and C modules.

Claim 3: Each of the C space switching modules includes means for connecting each of its N inputs to one of its P/C outputs.

Claim 4: Each of the C space switching modules is a non-blocking switch matrix with N inputs and P/C outputs.

Claim 10: The switching stage uses a technology based on lithium niobate (col. 20 lns. 35-38).

Claim 11: In the fig. 5 arrangement, each of the P/C outputs of the C modules is followed by a wavelength converter **55i-j**, which may be implemented as a semiconductor optical amplifier (col. 20 lns. 60-65).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shiragaki et al. (applied above).

Claim 12: Shiragaki does not show the input of each divider being preceded by an amplifier. The signals coming into the device at ports 50i were previously conducted along an optical network. See for example fig. 5, which shows a component corresponding to 101 of fig. 1 (col. 10 lns. 62-65). The complete fig. 1 apparatus is a node within the optical network (col. 6 lns. 42-44). It would have been obvious to a skilled person to use an amplifier in the optical network upstream of the Shiragaki fig. 5 device since it is well known that optical transmission lines have non-zero attenuation and since it is desirable to compensate for such attenuation in order to maintain the optical signals at useful strengths.

Response to Arguments (January 29, 2007 response)

To the extent that any remarks are rehashed from the December 21, 2006 response, the rebuttals in the advisory action mailed January 18, 2007 are incorporated by reference.

Initially the remarks disagree with the previous objection to claim 16. That objection is withdrawn and replaced with an indefiniteness rejection. The remarks' reference to "at most" N dividers is acknowledged, but this does not excuse the other language in claim 1 (as noted in the rejection above) which specifically establishes that there are at least N dividers. Claim 1 as

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written requires N dividers (due to the combination of at most N and at least N). Claim 16 as written is not consistent with claim 1 and cannot be satisfied if claim 1 is satisfied.

The remarks argued about the inherency assertion in the rejection of claim 12. The inherency assertion has been removed. The examiner makes no comment on the validity of the remarks' assumption that inherency is only applicable in anticipation rejections.

The remarks regarding the rejection of claims 1-4 and 10-11 under Shiragaki are essentially repeated from the December 21, 2006 response. These were already addressed in the advisory action as indicated above. It has been established that the Shiragaki SCCU bears the same structure as the SCCU defined in claim 1. Since it has the same structure, it is presumed to be capable of performing the same function (MPEP 2112.01(I)). The burden is upon applicant to show that the reference structure does not necessarily perform the same function. The remarks have not explained how the Shiragaki device is incapable of performing both packet switching and circuit switching. The description is of no help on this issue, since it mentions circuit switching only once (p. 10 lns. 11-14) and does not explain how that would require a different structure from packet switching.

Allowable Subject Matter

Claims 5-9 and 13-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Allowable aspects of these claims were noted in a previous Office action.

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Conclusion

Inquiries about this letter may be directed to examiner Stahl at the number below.

Inquiries of a general or clerical nature (e.g., a request for a missing form or paper, etc.) should be directed to the technical support staff supervisor at 571-272-1626. Official correspondence which is eligible for submission by facsimile and which pertains to this application may be faxed to 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Questions about the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Stahl MSS
2874
571-272-2360

May 9, 2007



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